572. SCIENCE STANDARDS - GRADE 3, SECTIONS 573 THROUGH 583.

The samples associated with the content standards are meant to illustrate meaning and to represent possible areas of applications. They are not intended to be an exhaustive list, but are samples of applications that would demonstrate learning.

573. UNIFYING CONCEPTS OF SCIENCE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand systems, order, and organization.	a. Recognize that a system is an organized group of related objects that form a whole.	i. Show how animals and plants rely on one another for oxygen/carbon dioxide. ii. Act out how the particular system works. iii. Sample systems: water cycle, toy car or truck.
	b. Explore the solar system.	
02. Understand concepts and processes of evidence, models, and explanation.	a. Develop skills in observation and data collection.	i. Adopt-A-Tree: predict, observe, and record changes throughout the year. ii. Any simple experiment that will allow changes in variables (bread mold, Alka-Seltzer rocket, petri dish).
	b. Recognize the difference between observations and inferences.	
	c. Develop and/or use models to explain how things work.	i. Make a model of the solar system. ii. Make a model bridge and test how much weight it can support.
03. Understand constancy, change, and measurement.	a. Explore concepts in science that do not change with time.	
	b. Understand that changes occur and can be measured.	i. Track the sun. Measure or trace shadows throughout the day. ii. Plant a seed and measure its daily growth. iii. Record and predict the daily temperature.
	c. Measure in both the standard and metric systems.	i. Measure temperature in Fahrenheit and Celsius. ii. Measure classroom items (perimeter and area).
04. Understand the theory that evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.	a. Understand the relationships of past, present, and future.	i. Water cycle. ii. Rocks. iii. Fossils.
05. Understand concepts of form and function.	a. Discover the relationship between shape and use.	i. Create a creature to survive in a particular environment/habitat.

574. CONCEPTS OF SCIENTIFIC INQUIRY.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand scientific inquiry and develop critical thinking skills.	a. Identify questions that can be answered by conducting scientific tests.	i. Use scientific experiments that stimulate students to ask questions, for example, building structures (tower).
	b. Conduct scientific tests.	i. Build a tower with toothpicks and marshmallows to see how high it can be built. ii. Build a structure using blocks to test structural strength.
	c. Use appropriate tools and techniques to gather and display data.	i. Given an assortment of tools, students will choose the appropriate tool(s) to measure and weigh an object and record data.
	d. Use data to construct a reasonable explanation.	i. Analyze data by: • graphing • class discussion
	e. Make simple predictions based on data.	i. Explain why the chosen structure design was the most appropriate one.
	f. Explore alternative explanations.	i. Discuss alternate methods and designs that could be used to achieve more successful results.
	g. Communicate the results of tests to others.	i. Share design with the class. ii. Compare results. iii. Use design and results in a science fair.

575. CONCEPTS OF PHYSICAL SCIENCE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the structure and function of matter and molecules and their interactions.	a. Use simple instruments to measure properties.	
	b. Explore the properties of solids, liquids, and gases.	i. Freeze water, melt the ice, and then boil the water. ii. Raisins in carbonated water/soda (submarines). iii. Baking soda and vinegar in bottle with expanding balloon.
	c. Know that heating and cooling can cause changes of state in common materials.	i. Grow crystals. ii. Boil an egg. iii. Melt chocolate. iv. Conglomerate cooking (pancakes with chocolate chips).
02. Understand concepts of motion and forces.	a. Investigate the effect of pull/push on the motion and direction of objects.	
	b. Recognize different forms of energy.	

	c. Explore and investigate the six simple machines: demonstrate that the six simple machines can decrease the amount of force necessary to complete a task.	i. Use simple machines to do work and determine which machine is more appropriate for each task. ii. Complete class experiments using pulleys, leavers and fulcrums, incline planes, wheels, gears, and screws.
03. Understand the total energy in the universe is constant.	a. Compare and contrast potential and kinetic energy.	

576. CELLULAR AND MOLECULAR CONCEPTS.

Cellular and Molecular Concepts standards do not apply at this grade level.

577. INTERDEPENDENCE OF ORGANISMS AND BIOLOGICAL CHANGE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the theory of biological evolution.	a. Investigate diversity of plants and animals and how they adapt in order to survive in their environment.	
	b. Investigate how plants and animals become extinct if their adaptations do not fit their environment.	
	c. Recognize the difference between vertebrate and invertebrate animals: classify vertebrate animals (mammals, reptiles, birds, fish, amphibians).	i. Picture collages. ii. Class art display representing animal classes.

578. MATTER, ENERGY, AND ORGANIZATION IN LIVING SYSTEMS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the relationship between matter, energy, and organization to trace matter as it cycles and energy as it flows through living systems and between living systems and the environment.	a. Know that living systems require energy to survive.	i. Classroom pets. ii. Plant experiment (fertilized, not fertilized, watered, not watered). iii. See “Project Wild,” “Project Wet,” and “Project Learning Tree” activities.
	b. Understand the food chain and know that organisms both cooperate and compete in ecosystems.	

579. EARTH AND SPACE SYSTEMS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand scientific theories of origin and subsequent changes in the universe and earth systems.	a. Explore the length of a day, the seasons, the year, phases of the moon, and eclipses.	
	b. Compare and contrast the contents of the solar system.	i. Make a model of the solar system. ii. Use the Internet to view images from Mars's probes.
	c. Explore the effect of gravity on the solar system; include elements within the solar system such as the Earth, Moon and tides.	

580. TECHNOLOGY.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the relationship between science and technology and develop the abilities of technological design and application.	a. Know that technology is the means by which people use knowledge, tools, and systems to make their lives easier and better.	i. Explore the history of the microscope, telescope, telephone, computer, and how advances in technology has improved the device. ii. Tree versus pencil.
	b. Recognize that people have invented tools for everyday life and for scientific investigations.	i. Choose an invention, write about the inventor, and describe any advances that have improved the invention and everyday life.
	c. Create a tool to perform a specific function.	
	d. Use available and appropriate technology.	

581. PERSONAL AND SOCIAL PERSPECTIVES.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand common environmental quality issues, both natural and human induced.	a. Identify issues in the local environment.	i. Collect newspaper and magazine articles. ii. Make a current issue's bulletin board. iii. Discuss issues and possible solutions. iv. Write a letter to government representatives or the newspaper.
02. Understand the causes and effects of population change.	a. Understand the effect of technological development and human population growth on local towns and/or Idaho.	

03. Understand the importance of natural resources and the need to manage and conserve them.	a. Understand the concept of recycling.	i. Participate in a recycling program. ii. Field trip to a recycling center. iii. Make your own recycled paper. iv. Build a compost pile. v. Make things (planters, bird feeders, mobiles, toys) using recyclable materials.
	b. Understand the conservation of natural resources.	i. Measure classroom and home resource use (how much water to wash hands, brush teeth, drinking). ii. Guest speakers from various natural resource and conservation professions. iii. Write a story about what might happen if natural resources ran out. iv. Collect uneaten food for a day/week and measure its weight.
04. Understand different uses of technology in science and how they affect our standard of living.	a. Identify examples of technologies used in scientific fields.	i. Brainstorm what technologies are used in a particular field (doctor, policeman, dentist, scientist, weatherman, astronaut). ii. Guest speaker from (03.b.) above to describe technology used. Compare brainstorm results with actual technology used.

582. HISTORY OF SCIENCE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the significance of major scientific milestones.	a. Understand major contributions of various scientists and researchers.	

583. INTERDISCIPLINARY CONCEPTS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand that interpersonal relationships are important in scientific endeavors.	a. Work in teams to solve problems.	i. Give a task to perform individually and as a group (putting up a tent, building a model, completing a puzzle).
02. Understand technical communication.	a. Read and understand instructions.	i. Give students a simple recipe to follow and compare results.